



## SEQUENCE LISTING

&lt;10&gt; Hahn, Gabriele

&lt;120&gt; Novel Virus Encoded Chemokines Determine the Tissue Tropism of Human Cytomegalovirus (HCMV)

&lt;130&gt; 2923-0545

&lt;140&gt; 10/619,189

&lt;141&gt; 2003-07-15

&lt;160&gt; 79

&lt;170&gt; PatentIn version 3.2

&lt;210&gt; 1

&lt;211&gt; 88

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; oligonucleotide primer

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&lt;212&gt; DNA

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<223> oligonucleotide primer

<400> 48  
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<210> 49

<211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide primer

<400> 49

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<210> 50  
 <211> 390  
 <212> DNA  
 <213> Human cytomegalovirus

<400> 50

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tctcgccgc tgcctgacca aacccggtac aagtatgtgg aacagctcgt ggacctcacg	180
ttgaactacc actacgatgc gagccacggc ttggacaact ttgacgtgct caagagaatc	240
aacgtgaccg aggtgtcggt gctcatcagc gactttatac gtcagaaccg tcgcggcggc	300
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gagttcagcg tgccgctt tgccaactag	390

<210> 51  
 <211> 129  
 <212> PRT  
 <213> Human cytomegalovirus

<400> 51

Met Arg Leu Ser Arg Val Trp Leu Ser Val Cys Leu Cys Ala Val Val			
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Leu Gly Gln Cys Gln Arg Glu Thr Ala Glu Lys Asn Asp Tyr Tyr Arg

20	25	30
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Val Pro His Tyr Trp Asp Ala Cys Ser Arg Ala Leu Pro Asp Gln Thr

35	40	45
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Arg Tyr Lys Tyr Val Glu Gln Leu Val Asp Leu Thr Leu Asn Tyr His

50	55	60
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Tyr Asp Ala Ser His Gly Leu Asp Asn Phe Asp Val Leu Lys Arg Ile  
65 70 75 80

Asn Val Thr Glu Val Ser Leu Leu Ile Ser Asp Phe Ile Arg Gln Asn  
85 90 95

Arg Arg Gly Gly Thr Asn Lys Arg Thr Thr Phe Asn Ala Ala Gly Ser  
100 105 110

Leu Ala Pro His Ala Arg Ser Leu Glu Phe Ser Val Arg Leu Phe Ala  
115 120 125

Asn

<210> 52  
<211> 240  
<212> DNA  
<213> Human cytomegalovirus

<400> 52  
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tctcgccgcg tgcctgacca aaccggttac aagtatgtgg aacagctcgt ggacctcacg 180  
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<210> 53  
<211> 79  
<212> PRT  
<213> Human cytomegalovirus

<400> 53

Met Arg Leu Cys Arg Val Trp Leu Ser Val Cys Leu Cys Ala Val Val  
1 5 10 15

Leu Gly Gln Cys Gln Arg Glu Thr Ala Glu Lys Asn Asp Tyr Tyr Arg  
20 25 30

Val Pro His Tyr Trp Asp Ala Cys Ser Arg Ala Leu Pro Asp Gln Thr  
35 40 45

Arg Tyr Lys Tyr Val Glu Gln Leu Val Asp Leu Thr Leu Asn Tyr His

50

55

60

Tyr Asp Ala Ser His Gly Leu Asp Asn Phe Asp Val Leu Lys Arg  
65 70 75

<210> 54  
<211> 1977  
<212> DNA  
<213> Human cytomegalovirus

<400> 54  
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gacgcgtgct ctcgcgcgt gcctgaccaa acccggtaca agtatgtgga acagctcg 180  
gacctcacgt tgaactacca ctacgatgcg agccacggct tggacaactt tgacgtgctc 240  
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<210> 55  
 <211> 1741  
 <212> DNA  
 <213> Human cytomegalovirus

<400> 55						
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ccaaga	atttt	tggagcgcac	atggtgc	ccaa	agcagaccaa	gctgctacgt	ttcg	tcgcca	900							
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tattgg	gtca	cagccgcgtg	ccg	cggttac	g	cg	caga	aga	atgttgcgaa	ttcataaaacg	1200					
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<210> 56  
 <211> 390  
 <212> DNA  
 <213> Human cytomegalovirus

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		accaacaaaa	ggaccacgtt	caac	gccc	g	ttcg	ctgg	cg	c	ctc	ac	gc	cc	gg	ag	gc	ctc	360

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390

<210> 57

<211> 129

<212> PRT

<213> Human cytomegalovirus

<400> 57

Met Arg Leu Ser Arg Val Trp Leu Ser Val Cys Leu Cys Ala Val Val  
1 5 10 15

Leu Gly Gln Cys Gln Arg Glu Thr Ala Glu Lys Asn Asp Tyr Tyr Arg  
20 25 30

Val Pro His Tyr Trp Asp Ala Cys Ser Arg Ala Leu Pro Asp Gln Thr  
35 40 45

Arg Tyr Lys Tyr Val Glu Gln Leu Val Asp Leu Thr Leu Asn Tyr His  
50 55 60

Tyr Asp Ala Ser His Gly Leu Asp Asn Phe Asp Val Leu Lys Arg Ile  
65 70 75 80

Asn Val Thr Glu Val Ser Leu Leu Ile Ser Asp Phe Ile Arg Gln Asn  
85 90 95

Arg Arg Gly Gly Thr Asn Lys Arg Thr Thr Phe Asn Ala Ala Gly Ser  
100 105 110

Leu Ala Pro His Ala Arg Ser Leu Glu Phe Ser Val Arg Leu Phe Ala  
115 120 125

Asn

<210> 58

<211> 1977

<212> DNA

<213> Human cytomegalovirus

<400> 58

gtctgcaaca tgcggctgtg tcgggtgtgg ctgtctgttt gtctgtgcgc cgtggtgctg

60

ggtcagtgcc agcgggagac cgccaaaaaa aacgattatt accgagtacc gcattactgg

120

gacgcgtgct	ctcgcgcgct	gcctgaccaa	accggttaca	agtatgtgga	acagctcgta	180
gacctcacgt	tgaactacca	ctacgatgct	agccacggct	tggacaactt	tgacgtgctc	240
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cgtctccgtg	gttcacgcta	acggcgaacc	agaatccgtc	ccgcgcattgg	tctaaactga	660
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<210> 59  
 <211> 1849  
 <212> DNA  
 <213> Human cytomegalovirus

<400> 59						
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tctcgccgc	tgcctgacca	aaccggttac	aagtatgtgg	aacagctcgt	ggacctcacg	180
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<210> 60  
 <211> 240  
 <212> DNA  
 <213> Human cytomegalovirus

<400>	60					
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tctcgcgcbc	tgcctgacca	aaccgttac	aagtatgtgg	aacagctcgt	ggacacctacg	180
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<210> 61  
 <211> 79  
 <212> PRT  
 <213> Human cytomegalovirus

<400> 61

Met	Arg	Leu	Cys	Arg	Val	Trp	Leu	Ser	Val	Cys	Leu	Cys	Ala	Val	Val
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Leu	Gly	Gln	Cys	Gln	Arg	Glu	Thr	Ala	Glu	Lys	Asn	Asp	Tyr	Tyr	Arg
									25				30		

Val	Pro	His	Tyr	Trp	Asp	Ala	Cys	Ser	Arg	Ala	Leu	Pro	Asp	Gln	Thr
									35			40		45	

Arg Tyr Lys Tyr Val Glu Gln Leu Val Asp Leu Thr Leu Asn Tyr His  
50 55 60

Tyr Asp Ala Ser His Gly Leu Asp Asn Phe Asp Val Leu Lys Arg  
65 70 75

<210> 62  
<211> 180  
<212> DNA  
<213> Human cytomegalovirus

<400> 62  
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gaacgctgtt acgatttcaa aatgtgcaat cgcttcaccg tcgcgtacgt atttcatga 180

<210> 63  
<211> 59  
<212> PRT  
<213> Human cytomegalovirus

<400> 63

Met Ser Pro Lys Asn Leu Thr Pro Phe Leu Thr Ala Leu Trp Leu Leu  
1 5 10 15

Leu Gly His Ser Arg Val Pro Arg Val Arg Ala Glu Glu Cys Cys Glu  
20 25 30

Phe Ile Asn Val Asn His Pro Pro Glu Arg Cys Tyr Asp Phe Lys Met  
35 40 45

Cys Asn Arg Phe Thr Val Ala Tyr Val Phe Ser  
50 55

<210> 64  
<211> 51'5  
<212> DNA  
<213> Human cytomegalovirus

<400> 64  
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gaacgctgtt acgatttcaa aatgtcaat cgcttcaccg tcgcactgcg gtgtccggac 180  
ggcgaagtct gctacagtcc cgagaaacgg ctgagattcg cgggatcgac accaccatga 240  
cccattcatt gacacgccag gtcgtacaca acaaactgac gagctgcaac tacaatctgt 300  
tatacctcga agctgacggg cgaatacgct gcggcaaagt gaacgacaag gcgcagtacc 360  
tgctggcgc cgctggcagc gttccctatc gatggatcaa cctggaatac gacaagataa 420  
cccgatcgt gggcctggat cagtaacctgg agagcgttaa gaaacacaaa cggctggatg 480  
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<210> 65

<211> 171

<212> PRT

<213> Human cytomegalovirus

<400> 65

Met Ser Pro Lys Asn Leu Thr Pro Phe Leu Thr Ala Leu Trp Leu Leu  
1 5 10 15

Leu Gly His Ser Arg Val Pro Arg Val Arg Ala Glu Glu Cys Cys Glu  
20 25 30

Phe Ile Asn Val Asn His Pro Pro Glu Arg Cys Tyr Asp Phe Lys Met  
35 40 45

Cys Asn Arg Phe Thr Val Ala Leu Arg Cys Pro Asp Gly Glu Val Cys  
50 55 60

Tyr Ser Pro Glu Lys Thr Ala Glu Ile Arg Gly Ile Val Thr Thr Met  
65 70 75 80

Thr His Ser Leu Thr Arg Gln Val Val His Asn Lys Leu Thr Ser Cys  
85 90 95

Asn Tyr Asn Leu Leu Tyr Leu Glu Ala Asp Gly Arg Ile Arg Cys Gly  
100 105 110

Lys Val Asn Asp Lys Ala Gln Tyr Leu Leu Gly Ala Ala Gly Ser Val  
115 120 125

Pro Tyr Arg Trp Ile Asn Leu Glu Tyr Asp Lys Ile Thr Arg Ile Val  
130 135 140

Gly Leu Asp Gln Tyr Leu Glu Ser Val Lys Lys His Lys Arg Leu Asp  
145 150 155 160

Val Cys Arg Ala Lys Met Gly Tyr Met Leu Gln  
165 170

<210> 66

<211> 804

<212> DNA

<213> Human cytomegalovirus

<400> 66

atgagtccca aaaacctgac gccgttcttg acggcggtgt ggctgctatt gggtcacagc 60  
cgcggtccgc gggtacgcgc agaagaatgt tgcgaattca taaacgtcaa ccacccgccc 120  
gaacgctgtt acgatttcaa aatgtgcaat cgcttcaccg tcgcgtacgt atttcatga 180  
tttgtctgcgt tctgtggtgc gtctggatct gtctctcgac gtttctgata gccatgttcc 240  
atcgacgatc ctcggaaatg ccagagtaga ttttcatgaa tccacaggct gcgggtcc 300  
gacggcgaag tctgctacag tccc gagaaa acggctgaga ttgcggat cgtcaccacc 360  
atgaccatt cattgacacg ccaggtcgta cacaacaaac tgacgagctg caactacaat 420  
ccgtaagtct cttcctcgag ggccttacag cctatggaa agtaagacag agggacaaaa 480  
catcattaaa aaaaaagtct aatttacgt tttgtacccc cccttccct ccgtgttcta 540  
ggttataacct cgaagctgac gggcgaatac gctgcggcaa agtgaacgac aaggcgcagt 600  
acctgctggg cgccgctggc ggcgttccct atcgatggat caacctggaa tacgacaaga 660  
tagccggat cgtggcctg gatcagtacc tggagagcgt taagaaacac aaacggctgg 720  
atgtgtgccg cgctaaaatg ggctatatgc tgcagtgaat aataaaatgt gtgtttgtcc 780  
gaaatacgcg tttttagatt tctg 804

<210> 67

<211> 685

<212> DNA

<213> Human cytomegalovirus

<400> 67

atgagtccca aaaacctgac gccgttcttg acggcggtgt ggctgctatt gggtcacagc 60

cgcgtgccgc	gggtacgcgc	agaagaatgt	tgcgaattca	taaacgtcaa	ccacccgccc	120
gaacgctgtt	acgatttcaa	aatgtgcaat	cgttcacccg	tcgcgtacgt	atttcatga	180
ttgtctgcgt	tctgtggtgc	gtctggatct	gtctctcgac	gtttctgata	gccatgttcc	240
atcgacgatc	ctcggaatg	ccagagtaga	ttttcatgaa	tccacaggct	gcgggtgtccg	300
gacggcgaag	tctgctacag	tcccagaaaa	acggctgaga	ttcgcgggat	cgtcaccacc	360
atgaccatt	cattgacacg	ccaggtcgta	cacaacaaac	tgacgagctg	caactacaat	420
ccgttatacc	tcgaagctga	cggcgaata	cgctgcggca	aagtgaacga	caaggcgcag	480
tacctgctgg	gcgcgcgtgg	cggcggtccc	tatcgatgga	tcaacctgga	atacgacaag	540
atagcccgga	tcgtggcct	ggatcagtac	ctggagagcg	ttaagaaaaca	caaacggctg	600
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aaaaaaaaaa	aaaaaaaaaa	aaaaaa				685

<210> 68  
 <211> 180  
 <212> DNA  
 <213> Human cytomegalovirus

<400> 68						
atagagtccca	aaaacctgac	gccgttcttg	acggcggtgt	ggctgctatt	gggtcacagc	60
cgcgtgccgc	gggtacgcgc	agaagaatgt	tgcgaattca	taaacgtcaa	ccacccgccc	120
gaacgctgtt	acgatttcaa	aatgtgcaat	cgttcacccg	tcgcgtacgt	atttcatga	180

<210> 69  
 <211> 59  
 <212> PRT  
 <213> Human cytomegalovirus

<400> 69

Met	Ser	Pro	Lys	Asn	Leu	Thr	Pro	Phe	Leu	Thr	Ala	Leu	Trp	Leu	Leu
1					5				10				15		

Leu	Gly	His	Ser	Arg	Val	Pro	Arg	Val	Arg	Ala	Glu	Glu	Cys	Cys	Glu
					20			25					30		

Phe	Ile	Asn	Val	Asn	His	Pro	Pro	Glu	Arg	Cys	Tyr	Asp	Phe	Lys	Met
						35			40			45			

Cys Asn Arg Phe Thr Val Ala Tyr Val Phe Ser  
50 55

<210> 70  
<211> 780  
<212> DNA  
<213> Human cytomegalovirus

<400> 70  
atgagtccca aaaacctgac gccgttcttg acggcgttgt ggctgctatt gggcacagc 60  
cgcgccgc gggtaacgcgc agaagaatgt tgcgaattca taaacgtcaa ccacccgccc 120  
gaacgctgtt acgatttcaa aatgtgcaat cgttcaccg tcgcgtacgt attttatga 180  
ttgtctgcgt tcttggtgc gtctggattt gtctctcgac gtttctgata gccatgttcc 240  
atcgacgatc ctcggaaatg ccagagtaga ttttcatgaa tccacaggct gcggtgtccg 300  
gacggcgaag tctgctacag tccc gagaaaa acggctgaga ttgcgggat cgtcaccacc 360  
atgaccatt cattgacacg ccaggtcgta cacaacaaac tgacgagctg caactacaat 420  
ccgttaagtct cttcctcgag ggccttacag cctatggaa agtaagacag agggacaaaa 480  
catcattaaa aaaaaagtct aatttacgt tttgtacccc ccctccctt ccgtgttcta 540  
ggttataacct cgaagctgac gggcgaatac gtcgcggcaa agtgaacgac aaggcgcagt 600  
acctgctggg cgccgctggc agcgttccct atcgatggat caacctggaa tacgacaaga 660  
taacccggat cgtgggcctg gatcagtacc tggagagcgt taagaaacac aaacggctgg 720  
atgtgtgccg cgctaaaatg ggctatatgc tgcagtgaat aataaaatgt gtgtttgtcc 780

<210> 71  
<211> 529  
<212> DNA  
<213> Human cytomegalovirus

<400> 71  
atgagtccca aaaacctgac gccgttcttg acggcgttgt ggctgctatt gggcacagc 60  
cgcgccgc gggtaacgcgc agaagaatgt tgcgaattca taaacgtcaa ccacccgccc 120  
gaacgctgtt acgatttcaa aatgtgcaat cgttcaccg tcgcgtcggt gtgtccggac 180  
ggcgaagtct gtcacagtcc cgagaaaaacg gtcgatggatc gcgggatcgt caccaccatg 240  
accattcat tgacacgcca ggtcgatcac aacaaactga cgagctgcaa ctacaatccg 300  
ttataacctcg aagctgacgg gcaatacgc tgcggcaaag tgaacgacaa ggcgcagttac 360

ctgctggcg	ccgctggcag	cgttccstat	cgtggatca	acctggaata	cgacaagata	420
acccggatcg	tgggcctgga	tcagtacctg	gagagcgtta	agaaacacaa	acggctggat	480
gtgtgccg	ctaaaatggg	ctatatgctg	cagtgaataa	taaaatgtg		529

<210> 72  
<211> 515  
<212> DNA  
<213> Human cytomegalovirus

<400> 72	atgagtc	aaaacctgac	gccgttcttg	acggcggtgt	ggctgctatt	gggtcacagc	60
	cgcgtgccgc	gggtacgcgc	agaagaatgt	tgcgaattca	taaacgtcaa	ccacccgccc	120
	gaacgctgtt	acgatttcaa	aatgtgcaat	cgcttcaccg	tcgcactg	gtgtccggac	180
	ggcgaagtct	gctacagtcc	cgagaaacgg	ctgagattcg	cgggatcg	accaccatga	240
	cccattcatt	gacacgccag	gtcgtacaca	acaaactgac	gagctgcaac	tacaatctgt	300
	tatacctcga	agctgacggg	cgaatacgct	gcggcaaagt	gaacgacaag	gcgcagtacc	360
	tgctggcgc	cgctggcagc	gttccctatc	gatggatcaa	cctggaatac	gacaagataa	420
	cccggatcgt	gggcctggat	cagtacctgg	agagcgttaa	gaaacacaaa	cggctggatg	480
	tgtgccg	ctaaaatggc	tatatgctgc	agtga			515

<210> 73  
<211> 171  
<212> PRT  
<213> Human cytomegalovirus

<400> 73

Met	Ser	Pro	Lys	Asn	Leu	Thr	Pro	Phe	Leu	Thr	Ala	Leu	Trp	Leu	Leu
1					5				10				15		

Leu	Gly	His	Ser	Arg	Val	Pro	Arg	Val	Arg	Ala	Glu	Glu	Cys	Cys	Glu
								25					30		

Phe	Ile	Asn	Val	Asn	His	Pro	Pro	Glu	Arg	Cys	Tyr	Asp	Phe	Lys	Met
							35					40		45	

Cys	Asn	Arg	Phe	Thr	Val	Ala	Leu	Arg	Cys	Pro	Asp	Gly	Glu	Val	Cys
							50		55			60			

Tyr Ser Pro Glu Lys Thr Ala Glu Ile Arg Gly Ile Val Thr Thr Met  
65 70 75 80

Thr His Ser Leu Thr Arg Gln Val Val His Asn Lys Leu Thr Ser Cys  
85 90 95

Asn Tyr Asn Leu Leu Tyr Leu Glu Ala Asp Gly Arg Ile Arg Cys Gly  
100 105 110

Lys Val Asn Asp Lys Ala Gln Tyr Leu Leu Gly Ala Ala Gly Ser Val  
115 120 125

Pro Tyr Arg Trp Ile Asn Leu Glu Tyr Asp Lys Ile Thr Arg Ile Val  
130 135 140

Gly Leu Asp Gln Tyr Leu Glu Ser Val Lys Lys His Lys Arg Leu Asp  
145 150 155 160

Val Cys Arg Ala Lys Met Gly Tyr Met Leu Gln  
165 170

<210> 74  
<211> 1977  
<212> DNA  
<213> Human cytomegalovirus

<400> 74  
gtctgcaaca tgcggctgtg tcgggtgtgg ctgtctgttt gtctgtgcgc cgtggtgctg 60  
ggtcagtgcc agcgggagac cgcagaaaaa aacgattatt accgagtacc gcattactgg 120  
gacgcgtgct ctcgcgcgt gcctgaccaa acccggttaca agtatgtgga acagctcg 180  
gacctcacgt tgaactacca ctacgatgcg agccacggct tggacaactt tgacgtgctc 240  
aagaggtgag ggtacgcgct aaaggtgtat gacaacggga aggttaaggc gaacggtaa 300  
cggtaggta accgcatggg gtgtgaaatg acgttcggaa cctgtgcttgc cagaatcaac 360  
gtgaccgagg tgtcggtgct catcagcgac tttagacgtc agaacccgtcg cggcggcacc 420  
aacaaaagga ccacgttcaa cgccgcccgt tcgctggcgc ctcacgcccc gagcctcgag 480  
ttcagcgtgc ggctctttgc caactagcct gcgtcacggg aaataaatatg ctacggcttc 540  
tgcttcgtca ccactttcac tgcctgcttc tgtgcgcgggt ttgggcaacg ccctgtctgg 600  
cgtctccgtg gttcacgcta acggcgaacc agaatccgtc cccgccccatgg tctaaactga 660

cgtatcccaa accgcatgac gcggcgacgt tttactgtcc ttttcttat ccctcgcccc	720
cacggtcccc ctcgaattc ccggggttcc agcgggtatc aacgggtccc gagtgtcgca	780
acgagaccct gtatctgctg tacaaccggg aaggccagac cttggtgag agaagctcca	840
cctgggtgaa aaagggtgatc tggtatctga gcggtcgcaa tcagaccatc ctccaacgga	900
tgcggcgaac ggcttcgaaa ccgagcgacg gaaacgtgca gatcagcgtg gaagacgcca	960
agattttgg agcgcacatg gtgccaaagc agaccaagct gctacgtttc gtcgtcaacg	1020
atggcacacg ttatcagatg tgtgtgatga aactggagag ctgggcccac gtctccggg	1080
actacagcgt gtctttcag gtgcgattga cgttcacca gccaataaac cagacttaca	1140
ccttctgcac ccatccaaat ctcatcgaaa gagcccgatc cgccgcagg gaattttgaa	1200
aaccgcgcgt catgagtccc aaaaacctga cgccgttctt gacggcggtt tggctgctat	1260
tgggtcacag cgcgtgccc cgggtacgac cagaagaatg ttgcgaattc ataaacgtca	1320
accacccgcc ggaacgctgt tacgattca aaatgtgaa tcgcttcacc gtcgcgtacg	1380
tatttcatg attgtctgac ttctgtggg cgtctggatt tgtctctcgat cggtctgat	1440
agccatgttc catcgacgat cctcgaaat gccagagtag attttcatgaa atccacaggc	1500
tgcgggttcc ggacggcgaa gtctgctaca gtcccgagaa aacggctgag attcgccggaa	1560
tcgtcaccac catgacccat tcattgacac gccaggtcgt acacaacaaa ctgacgagct	1620
gcaactacaa tccgtaagtc tcttcctcgaa gggccttaca gcctatggaa aagtaagaca	1680
gagggacaaa acatcattaa aaaaaaaagtc taatttcacg ttttgcaccc ccccttcccc	1740
tccgtgttgt aggttataacc tcgaagctga cgggcgaata cgctgcggca aagtgaacga	1800
caaggcgcag tacctgctgg gcgcgcgtgg cagcgatccc tatcgatggaa tcaacctggaa	1860
atacgacaag ataacccggaa tcgtggcct ggatcgtac ctggagagcg ttaagaaaca	1920
caaacggctg gatgtgtgcc gcgcgtaaaat gggctatatg ctgcagtgaa taataaa	1977

<210> 75  
 <211> 1620  
 <212> DNA  
 <213> Human cytomegalovirus

<400> 75	
atgcggctgt gtcgggtgtg gctgtctgtt tgtctgtgcg ccgtgggtgtc gggtcagtgc	60
cagcgggaga ccgcagaaaa aaaaacgatt attaccgagt accgcattac tgggacgcgt	120

gctctcgcbc	gctgcctgac	caaaccgtt	acaagtatgt	ggaacagctc	gtggacctca	180
cgttgaacta	ccactacgat	gcgagccacg	gcttggacaa	cttgacgtg	ctcaagagaa	240
tcaacgtgac	cgaggtgtcg	ttgctcatca	gcgacttag	acgtcagaac	cgtcgccg	300
gcaccaacaa	aaggaccacg	ttcaacgccc	ccggttcgct	ggcgccctcac	gccggagcc	360
tcgagttcag	cgtcgccg	tttgccaaact	agcctgcgtc	acggaaata	atatgctacg	420
gcttctgctt	cgtcaccact	ttcactgcct	gcttctgtgc	gcggtttggg	caacgccctg	480
tctggcgtct	ccgtggttca	cgctaacggc	gaaccagaat	ccgtccccgc	catggtctaa	540
actgacgtat	cccaaaccgc	atgacgcggc	gacgtttac	tgtcctttc	tctatccctc	600
gcccccacgg	tccccctcgc	aattcccggg	gttccagcgg	gtattaacgg	gtcccgagtg	660
tcgcaacgag	accctgtatc	tgctgtacaa	ccgggaaggc	cagaccttgg	tggagagaag	720
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ccggactac	agcgtgtctt	ttcaggtgcg	attgacgttc	accgaggcca	ataaccagac	1020
ttacaccc	tgcacccatc	ccaatctcat	cgttttagcc	cgtcgccg	gcagggatt	1080
ttgaaaaccg	cgcgtcatga	gtccaaaaaa	cctgacgccc	ttctttaggg	cgttgtggct	1140
gctattgggt	cacagccgcg	tgcccg	acgcgcagaa	aatgttg	cgatcataaa	1200
cgtcaaccac	ccgcccgaac	gctgttacga	tttcaaaatg	tgcatacg	tcaccgtcgc	1260
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gatcgtcacc	accatgaccc	attcattgac	acgcgcaggtc	gtacacaaca	aactgacgag	1380
ctgcaactac	aatctgttat	acctcgaa	tgacggcg	atacgctgcg	gcaaaagt	1440
cgacaaggcg	cagtac	ttggcgccgc	tggcagcg	ccctatcgat	ggatcaac	1500
ggaatacgac	aagataaccc	ggatcg	cctggatcag	tacctggaga	gcgttaagaa	1560
atacaaacgg	ctggatgtgt	gccgcgctaa	aatggctat	atgctgc	gaataataaa	1620

<210> 76  
 <211> 645  
 <212> DNA

<213> Human cytomegalovirus

<400> 76  
atgctacggc ttctgcttcg tcaccacttt cactgcctgc ttctgtgcgc ggtttggca 60  
acgccctgtc tggcgctcc gtggttcacg ctaacggcga accagaatcc gtccccgcca 120  
tggctcaaac tgacgtatcc caaaccgcac gacgcggcga cgtttactg tcctttctc 180  
tatccctcgc ccccacggc cccctcgcaa ttcccgggt tccagcgggt atcaacgggt 240  
cccgagtgac gcaacgagac cctgtatctg ctgtacaacc gggaaaggcca gaccttggtg 300  
gagagaagct ccacctgggt gaaaaaggta atctggtatac tgagcggtcg caatcagacc 360  
atccccaac ggatgccccg aacggcttcg aaaccgagcg acggaaacgt gcagatcagc 420  
gtggaagacg ccaagatttt tggagcgcac atggtgccca agcagaccaa gctgctacgt 480  
ttcgtcgtca acgatggcac acgttatcag atgtgtgtga taaaactgga gagctggcc 540  
cacgtcttcc gggactacag cgtgtttt caggtgcgat tgacgttcac cgaggccaat 600  
aaccagactt acacccatctg cacccatccc aatctcatcg tttga 645

<210> 77

<211> 214

<212> PRT

<213> Human cytomegalovirus

<400> 77

Met Leu Arg Leu Leu Leu Arg His His Phe His Cys Leu Leu Leu Cys  
1 5 10 15

Ala Val Trp Ala Thr Pro Cys Leu Ala Ser Pro Trp Phe Thr Leu Thr  
20 25 30

Ala Asn Gln Asn Pro Ser Pro Pro Trp Ser Lys Leu Thr Tyr Pro Lys  
35 40 45

Pro His Asp Ala Ala Thr Phe Tyr Cys Pro Phe Leu Tyr Pro Ser Pro  
50 55 60

Pro Arg Ser Pro Ser Gln Phe Pro Gly Phe Gln Arg Val Ser Thr Gly  
65 70 75 80

Pro Glu Cys Arg Asn Glu Thr Leu Tyr Leu Leu Tyr Asn Arg Glu Gly  
85 90 95

Gln Thr Leu Val Glu Arg Ser Ser Thr Trp Val Lys Lys Val Ile Trp  
100 105 110

Tyr Leu Ser Gly Arg Asn Gln Thr Ile Leu Gln Arg Met Pro Arg Thr  
115 120 125

Ala Ser Lys Pro Ser Asp Gly Asn Val Gln Ile Ser Val Glu Asp Ala  
130 135 140

Lys Ile Phe Gly Ala His Met Val Pro Lys Gln Thr Lys Leu Leu Arg  
145 150 155 160

Phe Val Val Asn Asp Gly Thr Arg Tyr Gln Met Cys Val Met Lys Leu  
165 170 175

Glu Ser Trp Ala His Val Phe Arg Asp Tyr Ser Val Ser Phe Gln Val  
180 185 190

Arg Leu Thr Phe Thr Glu Ala Asn Asn Gln Thr Tyr Thr Phe Cys Thr  
195 200 205

His Pro Asn Leu Ile Val  
210

<210> 78  
<211> 214  
<212> PRT  
<213> Human cytomegalovirus

<400> 78

Met Leu Arg Leu Leu Leu Arg His His Phe His Cys Leu Leu Leu Cys  
1 5 10 15

Ala Val Trp Ala Thr Pro Cys Leu Ala Ser Pro Trp Phe Thr Leu Thr  
20 25 30

Ala Asn Gln Asn Pro Ser Pro Pro Trp Ser Lys Leu Thr Tyr Pro Lys  
35 40 45

Pro His Asp Ala Ala Thr Phe Tyr Cys Pro Phe Leu Tyr Pro Ser Pro  
50 55 60

Pro Arg Ser Pro Ser Gln Phe Pro Gly Phe Gln Arg Val Ser Thr Gly  
65 70 75 80

Pro Glu Cys Arg Asn Glu Thr Leu Tyr Leu Leu Tyr Asn Arg Glu Gly  
85 90 95

Gln Thr Leu Val Glu Arg Ser Ser Thr Trp Val Lys Lys Val Ile Trp  
100 105 110

Tyr Leu Ser Gly Arg Asn Gln Thr Ile Leu Gln Arg Met Pro Arg Thr  
115 120 125

Ala Ser Lys Pro Ser Asp Gly Asn Val Gln Ile Ser Val Glu Asp Ala  
130 135 140

Lys Ile Phe Gly Ala His Met Val Pro Lys Gln Thr Lys Leu Leu Arg  
145 150 155 160

Phe Val Val Asn Asp Gly Thr Arg Tyr Gln Met Cys Val Met Lys Leu  
165 170 175

Glu Ser Trp Ala His Val Phe Arg Asp Tyr Ser Val Ser Phe Gln Val  
180 185 190

Arg Leu Thr Phe Thr Glu Ala Asn Asn Gln Thr Tyr Thr Phe Cys Thr  
195 200 205

His Pro Asn Leu Ile Val  
210

<210> 79  
<211> 171  
<212> PRT  
<213> Human cytomegalovirus

<400> 79

Met Ser Pro Lys Asn Leu Thr Pro Phe Leu Thr Ala Leu Trp Leu Leu  
1 5 10 15

Leu Gly His Ser Arg Val Pro Arg Val Arg Ala Glu Glu Cys Cys Glu  
20 25 30

Phe Ile Asn Val Asn His Pro Pro Glu Arg Cys Tyr Asp Phe Lys Met  
35 40 45

Cys Asn Arg Phe Thr Val Ala Leu Arg Cys Pro Asp Gly Glu Val Cys  
50 55 60

Tyr Ser Pro Glu Lys Thr Ala Glu Ile Arg Gly Ile Val Thr Thr Met  
65 70 75 80

Thr His Ser Leu Thr Arg Gln Val Val His Asn Lys Leu Thr Ser Cys  
85 90 95

Asn Tyr Asn Pro Leu Tyr Leu Glu Ala Asp Gly Arg Ile Arg Cys Gly  
100 105 110

Lys Val Asn Asp Lys Ala Gln Tyr Leu Leu Gly Ala Ala Gly Ser Val  
115 120 125

Pro Tyr Arg Trp Ile Asn Leu Glu Tyr Asp Lys Ile Thr Arg Ile Val  
130 135 140

Gly Leu Asp Gln Tyr Leu Glu Ser Val Lys Lys His Lys Arg Leu Asp  
145 150 155 160

Val Cys Arg Ala Lys Met Gly Tyr Met Leu Gln  
165 170